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EXAMINER	
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ART UNIT	PAPER NUMBER
4181	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/797,913	MEDFORD, BRAD A.	
	Examiner	Art Unit	
	Anh Ngoc Nguyen	4181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03/10/2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

RESPONSE TO ARGUMENTS

1. Examiner acknowledges receipt of Applicant's Arguments/Remarks received 01/14/2008. Applicant's arguments have been fully considered but they are not persuasive. The applicant's arguments with respect to the claims, i.e., a method and an apparatus for phase modulating an ATM signal based on an IP signal to form a ATM/IP signal, having a phase modulator, transmitting the ATM/IP signal to many locations over the PON, having a phase demodulator to phase demodulate the ATM/IP signal to extract an IP stream, and obtaining an IP stream by demodulating the ATM/IP signal.

Dyke discusses PONs generally use an asynchronous transfer mode (ATM) as the transport protocol; receiving data packetised in an internet protocol (IP) format; coding the IP formatted data into a line code; modulating the line code onto an optical carrier; and applying a resultant modulated optical carrier to the optical communication resource. Plus, Dyke discusses a point to multipoint optical transmission system to carry telecommunications signals over a PON and the OLT/ONU demodulates the optical carrier and then decodes the line code to recover the IP packet for forwarding/routing. Beidas discusses a QPSK modulation and BPSK type modulation. Plus, Beidas discusses a modulator for modulating at least two signals, each comprising a set of digital values and a demodulator for demodulating the modulated signal. Therefore, Dyke and Beidas showed the limitations singularly or in combination of an optical system and it were showed in combination to cover those limitations.

Concerning the applicant's arguments on the dependent claims, Dyke, Beidas and Loshbough showed the limitations singularly or in combination of a system and it were shown in combination to cover those limitations.

In response to applicant's argument that the references are not combinable, the test for obviousness is not whether the feature of a secondary references may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See In re Keller, 642 F.2d 413, 208 USPQ (CCPA 1981).

As a result the argued features read upon the references as follows.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 5 – 9, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyke et al (US 6,870,836) in view of Beidas et al (US 6,608,874).

Consider claim 1, Dyke discloses a method comprising: modulating an Asynchronous Transfer Mode (ATM) signal based on an Internet Protocol (IP) signal to form a combined

ATM/IP signal (see col. 5 lines 10 – 15 lines 25 - 31, where Dyke discusses modulating the line code onto an optical carrier).

Dyke does not specifically disclose phase modulating. Beidas teaches phase modulating data signals (see col. 1 lines 35 – 40 and col. 2 lines 47 - 50, where Beidas discusses QPSK). It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the invention of Dyke, and phase modulate data signals, as taught by Beidas, thus use QPSK to improve on the spectral efficiency of BPSK by transmitting more than one bit in each signaling interval, as discussed by Beidas (see col. 1 lines 34 - 38).

Consider claim 5, Dyke discloses communicating the combined ATM/IP signal on an ATM-based network; receiving the combined ATM/IP signal via the ATM-based network; and phase demodulating the combined ATM/IP signal to extract the IP signal (see Fig. 3, col. 10 lines 7 – 17, where Dyke discusses the OLT/ONU demodulates the optical carrier and then decodes the line code to recover the IP packet).

Consider claim 6, Dyke discloses the ATM-based network comprises a G.983-based network (see col. 1 lines 50 – 53, where Dyke discusses standard G. 983).

Consider claim 7, Dyke discloses communicated the combined ATM/IP signal to multiple locations including a first location and a second location (see Fig. 2, col. 5 lines 10 – 15, col. 5 lines 50 – 57 and col. 6 lines 37 – 40, where Dyke discusses a point to multipoint optical transmission system). Dyke discloses receiving the combined ATM/IP signal at the first location; extracting, at the first location, an ATM stream specific to the first location from the combined ATM/IP signal; receiving the combined ATM/IP signal at the second location; and phase demodulating the combined ATM/IP signal at the second location to extract an IP stream

(see col. 10 lines 8 – 17, where Dyke discusses demodulating the optical carrier to recover the IP packet and sending to an addressed destination).

Consider claim 8, Dykes discloses the combined ATM/IP signal is communicated via a passive optical network to the multiple locations (see Fig. 2, col. 4 lines 15 – 25, and col. 8 lines 34 – 59, where Dyke discusses a point to multipoint optical transmission system to carry signals over a passive optical network PON).

Consider claim 9, Dyke discloses a method of upgrading an embedded Asynchronous Transfer Mode (ATM)-based passive optical network (PON) having a plurality of existing ATM-based optical network terminals (ONTs), the method comprising: upgrading an optical line terminal (OLT) to comprise a modulator to modulate a phase of an ATM signal based on an Internet Protocol (IP) signal (see col. 5 lines 25 - 31). Dyke discloses replacing at least one of the existing ATM-based ONTs with an IP-based ONT having a demodulator (see col. 10 lines 8 - 15); generating, at the OLT, a combined ATM/IP signal by modulating the ATM signal based on the IP signal (col. 5 lines 10 – 15 lines 25 – 31); communicating the combined ATM/IP signal to multiple locations via the PON (see col. 2 lines 26 - 30); receiving the combined ATM/IP signal at one or more ATM locations having an existing ATM-based ONT; extracting, at each of the ATM locations, a respective ATM stream specific to the location from the combined ATM/IP signal using its existing ATM-based ONT (see col. 1 lines 30 - 40); receiving the combined ATM/IP signal at one or more IP locations having an IP-based ONT (col. 5 lines 6 – 15 and col. 9 lines 50 - 55); and extracting, at each of the IP locations, an IP stream by demodulating the combined ATM/IP signal (see col. 10 lines 10 – 15, where Dyke discusses OLT/ONU demodulates the optical carrier).

Dyke does not specifically disclose phase modulating. Beidas teaches phase modulating data signals (see col. 1 lines 35 – 40 and col. 2 lines 47 - 50, where Beidas discusses QPSK). It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the invention of Dyke, and phase modulate data signals, as taught by Beidas, thus use QPSK to improve on the spectral efficiency of BPSK by transmitting more than one bit in each signaling interval, as discussed by Beidas (see col. 1 lines 34 - 38).

Consider claim 12, Dyke discloses an optical network terminal (ONT) comprising: a demodulator to demodulate a combined Asynchronous Transfer Mode (ATM)/Internet Protocol (IP) signal to extract an IP stream (see col. 10 lines 10 - 15).

Dyke does not specifically disclose a phase demodulator. Beidas teaches a demodulator for demodulating the modulated signal (see col. 2 lines 35 – 45 and col. 3 lines 1 - 7).

It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the invention of Dyke, and use a phase demodulator, as taught by Beidas, thus use QPSK to improve on the spectral efficiency of BPSK by transmitting more than one bit in each signaling interval, as discussed by Beidas (see col. 1 lines 34 - 38).

Consider claim 15, Dyke discloses an optical line terminal (OLT) comprising a modulator to modulate an Asynchronous Transfer Mode (ATM) signal based on an Internet Protocol (IP) signal to form a combined ATM/IP signal (see col. 5 lines 25 - 30).
Dyke does not specifically disclose phase modulating. Beidas teaches phase modulating data signals (see col. 1 lines 35 – 40 and col. 2 lines 47 - 50, where Beidas discusses QPSK).

It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the invention of Dyke, and phase modulate data signals, as taught by Beidas,

thus use QPSK to improve on the spectral efficiency of BPSK by transmitting more than one bit in each signaling interval, as discussed by Beidas (see col. 1 lines 34 - 38).

Consider claim 3, 4, 11, 17, and 18, Beidas discloses said phase modulating encodes multiple bits or two bits of the IP signal per pulse in the ATM signal (see col. 1 lines 34 – 67, where Beidas discusses communicating two bits of information on each quadrature component of a carrier signal during a single signaling interval).

Consider claim 13 and 14, Beidas discloses the phase demodulator is to decode multiple bits or two bits of the IP stream per pulse in the combined ATM/IP signal (see abstract, col. 1 lines 60 – 67 and col. 3 lines 1 – 30).

3. Claims 2, 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over in Beidas et al (US 6,608,874) in view of Dyke et al (US 6,870,836) and further in view of Loshbough (3,701,106).

Consider claims 2, 10 and 16, Beidas and Dyke do not specifically disclose phase modulating comprises phase modulating the ATM signal based on the IP signal without exceeding a specified tolerance of symbol period of the ATM signal. Loshbough discloses phase modulating comprises phase modulating the ATM signal based on the IP signal without exceeding a specified tolerance of symbol period of the ATM signal (see abstract).

It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the invention of Beidas and Dyke, and use a detector, as taught by Loshbough, thus determining whether or not data within tolerance remains in tolerance for a period, as discussed by Loshbough (col. 1 lines 19 - 49).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Suzuki (US 6,330,239) discloses exchanging data between an ATM network and an IP communication network. Ploumen (US 2005/0138670) discloses using a modulator to receive and modulate the digital video signals over a PON. Edwards et al (US 6,415,002) disclose phase and amplitude modulation of baseband signals. Oda et al (US 6,522,667) disclose converting an IP packet used in the IP network into ATM cells used in the ATM network and vice versa. Dent (5,815,531) discloses encoding data bits using QPSK modulators.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh Ngoc Nguyen whose telephone number is 5712705139. The examiner can normally be reached from 8AM to 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on 5712727876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anh Ngoc Nguyen/
Examiner, Art Unit 4181
2/1/2008

/Nick Corsaro/
Supervisory Patent Examiner, Art Unit 4181